PULMONARY FUNCTION IN ATHLETES.

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Vital Capacity varies in different individuals and depends to a considerable extent upon physical development and activity. Dreyer (1919) who studied a large number of subjects of various categories found that active athletic class of subjects had a higher vital Capacity (VC), confirming the earlier observations of Hutchinson (1846). The present study was undertaken to determine the influence of athletic training on Timed Vital Capacity (TVC) and Maximum Breathing Capacity (MBC) which are now regarded as more reliable indices of ventilatory function.

MATERIALS AND METHODS

Physical education students at the peak of their training were chosen as representative of an athletic group, and determinations were made in 21 subjects (14 males and 7 females). VC and MBC, were recorded with a Collin's 9-Litre Respirometer. TVC (1,2 and 3 second values) were measured from the expiratory vital spirogram, with the Segal-Herschfus ruler. All gas valumes were corrected for BTPS. Height in centimeters and weight in kilograms were recorded in each subject and the Body Surface Area (BSA) was calculated by reference to a nomogram based on the formula of Banerjee and Sen (1955).

RESULTS

The mean values are presented in Table 1. In previous studies in normal healthy male and female subjects, regression equations were evolved, which permit prediction of expected values for VC & MBC from physical measurements (Singh and Prabhakaran 1958; Singh 1959). The expected values for each subject in this study was calculated from the formula based on height, and this was compared to the actual value recorded. It was found that in these subjects the mean VC was 6.5% higher (5.5% in males and 8.6% in females), and the MBC was 11.3% higher (9.4% in males and 15% in females). The significance of the differences was analysed statistically, and it was found that while the difference in MBC was very significant, the difference in VC was barely so. The TVC for 1, 2 and 3 records were also somewhat higher in these subjects, the mean values being 86.8%, 96.8% and 99.0% respectively in males, and 76.3%, 94.1% and 99.4% in females. The

SUMMARY

VC, TVC & MBC were recorded in 21 physical education students; while both VC and MBC were higher than predicted values, the difference in MBC was greater. The significance of this difference is discussed.

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